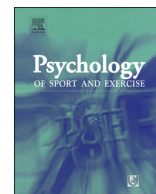


Contents lists available at ScienceDirect

Psychology of Sport and Exercise

journal homepage: www.elsevier.com/locate/psychsport

A qualitative investigation of the motivational climate in elite sport

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ARTICLE INFO

Article history:

Received 5 July 2013

Received in revised form

26 September 2013

Accepted 12 October 2013

Available online 27 October 2013

Keywords:

Motivational atmosphere

Social influences

Elite athletes

Coaches

Parents

Peers

ABSTRACT

Objectives: This study examined the construction of the motivational climate surrounding elite sports performers by investigating the behaviours of coaches, peers and parents that were perceived to be motivationally relevant by elite athletes.

Design: Qualitative – inductive.

Method: Twenty-eight national, international and world-class athletes (15–29 years old) took part in semi-structured focus groups and interviews investigating how they believe coaches, parents, and peers influence their motivation.

Results: An inductive content analysis indicated that elite athletes perceived a multitude of motivationally-relevant social cues. Coaches and peers were reported to be focal influences, whilst the role of parents appeared to be limited to emotional and moral support. Themes of feedback/evaluation, and pre-performance motivating behaviours were common to all social agents, whereas only the coach –athlete and peer –athlete relationships appeared to be important in moderating and directly influencing motivation towards sport. The influences of social agents related to the specific roles they performed in the athlete's life: instruction and leadership for coaches; emotional support, collaborative and/or competitive behaviours for peers, and for parents, a diminished role relative to when the athletes were younger.

Conclusions: A central finding of the paper is that there was no discernible one-to-one correspondence between specific behaviours and their impact on motivation. Instead, the findings suggest complex contextual interactions between the immediate behaviours of social agents and the impact on the athlete's motivation. If supported, this finding would necessitate new and novel approaches in future research in order to facilitate a more advanced understanding of athlete motivation in elite sport.

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Elite athletes train and make tremendous sacrifices in order to reach the pinnacle of physical condition, technical prowess, and human achievement. Even the most talented athletes are unlikely to realise their potential without significant practice and arduous training (Treasure, Lemyre, Kuczka, & Standage, 2008). Elite athletes need to be highly motivated, over a long period of time, in order to train so frequently and intensely. If this motivation can be influenced by the people who surround the athletes on their journeys – their coaches, team-mates and parents – then a central question becomes: “What do these key social agents do to influence

the motivation of elite athletes?” Motivation has been defined as: “the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity and persistence of behaviour” (Vallerand & Thill, 1993, p. 18). Researchers frequently focus on the regulation of motivated behaviour, as opposed to the observable outcomes such as effort, persistence, or task choice (cf. Roberts, 1993), and this is best reflected in the title of Deci and Flaste's (1996) paper: motivation is “why we do what we do”.

The motivational influence exerted by key social agents is often referred to as the *motivational climate* which is a term most closely associated with achievement goal theory (AGT – Ames, 1992; Nicholls, 1989). Over the last 30 years, numerous studies have attempted to conceptualise and measure motivational climates, and the majority of this research has used: (a) school and university aged athletes, rarely of an elite level; (b) Nicholls' (1989) model of achievement goals as a theoretical guide; and (c) an exclusive focus

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on one-or-another social agent (usually the coach) – rarely studying the concurrent influences of coaches, peers and parents (see Harwood, Spray, & Keegan, 2008). With respect to the above issues, the present study sets out to: examine the concurrent influence of these three key social agents (issue c) at the elite level of sport participation (issue a), and without an *a priori* commitment to any existing motivational theory (issue b). In taking the approach of not ‘subscribing’ to one theory or another in advance, this study instead critically considered each theory and attempted to draw out similarities and differences between findings and theoretical tenets (cf. Henwood & Pidgeon, 2003).

Defining elite athletes: the ‘investment–mastery’ career stage

Models of career progression in sport have been developed by Bloom (1985), Côté, Baker, and Abernathy (2003) and Wylleman, Alfermann, and Lavalley (2004). In each case, the early career is characterised by participants who are generally prompted to try a number of different sports and see if they either enjoy it or have some talent. This period is termed ‘initiation’ (Côté et al., 2003) or ‘sampling’ (Wylleman et al., 2004). Following this stage, athletes tend to focus on one or two sports in which they specialise, and seek to learn the key skills, tactics and rules. This period (‘specialising’) is characterised by gradual changes from ‘free play’ and ‘deliberate play’ towards greater deliberate practice. Likewise athletes transition from helpful/friendly coaching to specialist coaching, and from significant parental involvement towards indirect parental involvement. Indeed, the models suggest that the influence of parents decreases during the ‘mastery’ or ‘investment’ stage, with peers, coaches and (for some) partners being the most influential. For those athletes who do continue into the investment–mastery stage, their ‘arrival’ is likely to be signified by the completion of all these transitional processes (Côté et al., 2003). This ‘investment–mastery’ stage can begin from approximately 15 years of age, depending on the sport, although 18–19 years of age is proposed to be the average (Wylleman et al., 2004). This stage can be considered to continue until retirement (e.g., Côté et al., 2003). Following recent investigations into motivational influences at the ‘sampling’ stage (Keegan, Spray, Harwood, & Lavalley, 2009) and the ‘specialisation’ stage (Keegan, Harwood, Spray, & Lavalley, 2010), the current paper addresses the ‘investment–mastery’ stage: encapsulating athletes who have recently entered, or are currently thriving at, the elite level – competing nationally and internationally.

Research to date

There is a sizeable body of quantitative research examining the ‘motivational climate’ (Ames, 1992; reviewed by Harwood et al., 2008) and athlete’s perceptions of having their psychological needs supported (cf. Deci & Ryan, 2000). As such, the following section must be prefaced with the acknowledgement that quantitative questionnaires have contributed substantially to current understanding in motivation research. These studies invariably demonstrate correlations between athletes’ generalised perceptions of the climate (e.g., a ‘mastery’ climate) with various outcome measures, such as intrinsic motivation or self-reported perceptions of affect/enjoyment. This research has clearly emphasised the importance of athletes’ perceptions of their social environment in determining motivation (Harwood et al., 2008). However, the heavy reliance on self-report questionnaires has also been critiqued on the grounds that: (a) perceptions of the motivational environment often differ widely, even between team-mates with the same coach (cf. Cumming, Smith, Smoll, & Grossbard, 2007; Papaioannou, 1994) – meaning that the athlete’s responses may not reflect objectively observable coaching behaviours (cf. Duda,

2001; Keegan, Harwood, et al., 2010); (b) the mathematical techniques of developing questionnaires force researchers to study generalised and abstract perceptions, separated from the reality of what social agents actually do to influence athlete motivation; and (c) as an additional consideration, questionnaires have been developed to study the separate influences of coaches (e.g., Perceived Motivational Climate in Sport Questionnaire-2 – Newton, Duda, & Yin, 2000), parents (e.g., Parent Initiated Motivational Climate Questionnaire-2 – White, 1996) and peers (e.g., Peer Motivational Climate in Youth Sport – Ntoumanis & Vazou, 2005), each with different questions/items, subscales and factor structures. This separation prevents comparisons between the relative influences of different social agents. These issues, combined with the fundamental rule that correlation must never be conflated with causation (Aldrich, 1995), suggest genuine limitations in studying motivation with questionnaires and correlational modelling. Additionally, in light of the above issues of subjectivism and abstraction, it remains problematic to offer coaches’ or parents’ advice based on these findings; as they are neither behaviourally specific nor robust enough to ensure the desired results (i.e., increased athlete motivation).

In response to these developing criticisms, Keegan et al. (2009) and Keegan, Harwood, et al. (2010) qualitatively explored the factors perceived to be motivationally relevant by young athletes at the start of their participation in sport (*sampling*) and also in the *specialising* years, respectively. Both studies examined the ways that athletes perceived their coaches, parents and peers to influence their motivation. In these studies, the influences of social agents were related to the specific roles they fulfilled for the athlete. For example, the influence of coaches related most strongly to the manner in which they performed the key roles of instruction and evaluation, whereas parents’ influences were most salient in terms of the way they supported participation and learning. Both parents and coaches exerted influences through their leadership styles, affective responses and pre-performance behaviours. Hence, parents and coaches were reported to have similar influences where their roles overlapped, but different influences where their roles diverged (e.g., only parents can perform the roles of buying equipment and arranging weekends around sport). In both studies, peers influenced motivation by being competitive (positively or negatively), collaborative (i.e., meeting up to undertake extra training/play), and via their evaluative comments and social relationship. The similarities between the two studies were interpreted in terms of the common goals of each career stage, with an increasing focus on skill development and fewer sports being the only discernible differences (Côté et al., 2003; Wylleman et al., 2004). Most notably, these studies and others like them (e.g., Holt, Tamminen, Black, Mandingo, & Fox, 2009) reported difficulty in attempting to consistently associate specific behaviours of coaches, parents or peers with specific motivational outcomes. For example, a single criticism from the coach could either undermine motivation or lead to an ‘I’ll show you!’ response (e.g., Keegan, Harwood, et al., 2010). If repeated in other ‘theoretically agnostic’ studies, this may be a significant finding in the field, and an important lesson in not insisting on the use of one dominant theory to determine a study’s research questions, methodological choices, and interpretations of data.

Overall, the growing number of qualitative studies in this area suggests that there may be a complex, interactive and multifaceted *motivational atmosphere* (cf. Keegan, Harwood, et al., 2010; Keegan, Spray, Harwood, & Lavalley, 2010) around sports performers, which contains within it the broad spectrum of influences exerted by coaches, parents, peers and others across a variety of contexts and settings. A useful analogy for the contribution of these studies would be attempting to ‘reverse engineer’ food recipes. Qualitative studies

such as those listed above have, with sampling and specialising athletes, begun to identify the ‘raw ingredients’, but not yet the processes through which they combine and interact in influencing athlete motivation (which may require an entirely different methodology to fully elucidate), and not yet with elite athletes – who may experience very different social environments (see below). This idea is echoed in the conclusion of [Smith, Smoll, and Cumming \(2007\)](#) who called for “dismantling studies” of the motivational climate in order to subsequently “clarify relations between particular intervention elements and various outcome measures” (p. 54). These comments may reflect a growing necessity for studies that deliver a deeper understanding of the roles, behaviours and interactions of people surrounding the athlete (arguably quite a substantial task), and this need is just as urgent in helping elite athletes as it is with those beginning their sporting careers. As such, the present study also seeks to identify a complete list of the ‘raw ingredients’ that constitute an elite athlete’s motivational climate, or motivational atmosphere, such that future studies may continue to explore how they combine and interact. To attempt more would arguably be beyond the scope of a single paper.

The challenge of studying elite athletes

Amongst studies examining the social and environmental influences on motivation, very few have sampled elite athletes; although recent exceptions include [Abrahamsen, Roberts, and Pensgaard \(2008\)](#) and [Pensgaard and Roberts \(2002\)](#). These studies reported correlational findings consistent with previous studies (described above). Whilst there is a recognised lack of research with elite athletes ([Treasure et al., 2008](#)), several studies have been illuminating. [Chantal, Guay, Dobрева-Martinova, and Vallerand \(1996\)](#) examined the motivational profiles of 98 elite Bulgarian athletes. Their results suggested that less intrinsic forms of motivation (i.e., external inducements/rewards) were associated with better performance, which is relatively counter-intuitive when viewed within the Cognitive Evaluation Theory component of Self-Determination Theory (SDT – [Deci & Ryan, 1985](#)).

One explanation for the above finding was that money, status, recognition and lifestyle are so inherently associated with elite sport that these external inducements become ‘internalised’ by elite athletes. Such an internalisation process was proposed to be such that external inducements were viewed as quite normal rather than causing the athletes to feel controlled/manipulated ([Chantal et al., 1996](#)). This suggestion was supported by [Mallet and Hanrahan \(2004\)](#), who examined intrapersonal factors motivating elite athletes. In this analysis, aspects of social status/recognition and money were classified into the ‘ego’ goals of AGT, whilst feeling in control and enjoyment/excitement were subsumed into ‘task’ goals. This study also asserted that elite athletes did not perceive the same negative connotations of these extrinsic rewards, whilst adding that, in all likelihood, athletes pursued multiple goals during their participation, ranging from ‘love-of-the-game’ to money and status. Hence, elite athletes would be able to maintain high levels of motivation and persistence throughout their participation. Nonetheless, external inducements such as money and status have been linked with athlete burnout ([Cresswell & Eklund, 2005](#)) and dropout ([Pelletier, Fortier, Vallerand, & Brière, 2001](#)).

Hence, if we accept that the motivational influences on elite athletes are qualitatively different from those of younger groups, then a key question becomes (or remains): “What specific things do the coaches, parents and peers of elite athletes do to impact upon their motivation, and how can we begin to study this?” The current paper sets out to generate a foundation of knowledge which can inform future studies, from the theoretically agnostic to the highly deductive, because each will undoubtedly play a role in the advancement of knowledge.

Method

Participants

The study obtained ethical clearance from the ethics committee of a British University. Four focus groups and 10 interviews were conducted containing 28 sport participants in total (five females and 23 males), recruited from eight sports (see below) with an age range of 15.7–28.5 years (Mean = 20.25 years; sd = 4.78). Twenty-two of the participants were white European, one white Australian, and four were black-African (one French-African and three English-African). The participants were recruited either by being approached personally, or by writing to their coaches, with parental consent granted for all participants under the age of 18. Using the framework of [Côté et al. \(2003\)](#) and [Wylleman et al. \(2004\)](#), a maximum variability theoretical sample ([Lincoln & Guba, 1985](#)) of investment–mastery athletes was sought using the following criteria: (a) career length over 8 years; (b) competing in one sport to either national or international level; and (c) high frequency, high intensity training. The sample contained one former European champion archer, five international swimmers attending the Commonwealth and/or Olympic games, two tennis players competing internationally, four premiership footballers (two international), six footballers in the final year of a premiership academy, two women’s international footballers, one international mixed-martial artist (MMA), two county level cricketers (county cricket in the UK is equivalent to the top division), and five under-21 international rugby players.

Procedure

A mixture of focus groups and interviews was chosen for both practical and theoretical reasons. Elite athletes are a difficult population to access due to their training schedules and travel demands, so where a group of athletes were in the same location and available at the same time, they were interviewed together. These focus groups maximised the experience within each group, using athletes who were already familiar with each other (argued to facilitate discussions and shared experiences – cf. [Ulin, Robinson, Tolley, & McNeill, 2002](#)), and taking place immediately after training sessions. Where athletes were available individually then this opportunity was also taken, not least because individual interviews provided an opportunity for the fuller exploration of ideas and experiences. Both methods return data of a similar nature, and whilst the focus groups had the benefit of pooling a breadth of experience, interviews facilitated deeper more personal accounts. This pragmatic approach is advocated in several recent papers (e.g., [Giacobbi, Poczwadowski, & Hager, 2005](#)) on the condition that it is exercised judiciously – a process that was supported both by individual reflection of the interviewer and the critical oversight of the research team (see below). Eight steps, detailed below, were deployed to maximise trustworthiness and credibility. All interviews took place at the respective training site and lasted 45–65 min.

Participants took part under their own volition with no incentive offered by the interviewer. All interviews were conducted by the first author. A semi-structured interview guide (adapted from [Keegan et al., 2009](#)) was deployed although questions changed as themes developed between interviews. After a brief introduction, the main questions were intended to assess the influences (positive and negative) of coaches, parents and peers on motivated behaviours, including effort, persistence, task choice, focus, and enjoyment (cf. [Roberts, 2001](#)). Sample questions included: “What things can your [coach/parents/team-mates] do, or say to make you [want to play sport/want to try hard in your sport/make you enjoy your

sport/focus you on learning new skills/help you to keep trying when you're struggling?], or "What things might they do to stop you feeling that way?" Probes would always check that the behaviours reported had been observed and were not simply reflecting the athlete's desires, for example: "Do you have an example of that? Has this happened to you?" The interview finished with summary questions such as: "If you could write a wish-list saying 'To make me [try hard all the time/really enjoy my sport] this is how you should be'; what sort of things would go on that list?" and "What are the most important things we've mentioned here today?" The interview proceeded differently every time in response to the discussions and debates between participants. The sections relating to coaches, parents and peers were asked in a counterbalanced order between interviews to alleviate any potential effects of fatigue. Athletes were allowed to respond freely and debates were encouraged in the focus groups when participants had different perspectives. If questions intended for later in the interview were discussed, this was also permitted. Impromptu probes were generated to explore themes and new questions that arose during interviews. Thus, while the interview was structured, there was flexibility within it to allow greater depth of exploration.

Data analysis

An eight-step analytic procedure (adopted from Keegan et al., 2009) was implemented to prepare and analyse the data: (1) transcribe interviews verbatim (yielding 252 pages of single-spaced text); (2) read and re-read transcripts for familiarisation; (3) divide quotes into those concerning coaches, parents and peers; (4) perform a thorough inductive content analysis, moving recursively between creating tags ("open coding"), creating categories ("focused coding"), and organising categories, using constant comparison and critical reflection to guide analysis (cf. Côté, Salmela, Baria, & Russell, 1993) within each domain using QSR NVivo version 7 qualitative analysis software (QSR, 2006); (5) inter-rater checking of the coding in a sample of transcripts (the research team compared the independent codings of three volunteer coders over three randomly selected manuscripts, concluding that codings were semantically consistent in 82% of the cases, which is acceptable according to LeCompte & Goetz, 1982); (6) member checking – which consisted of returning manuscripts and analysis outcomes to original participants for checking (eight responses) as well as recruiting new participants to explore and assess the findings ($n = 2$). This process did not suggest any modifications to the study findings or analysis, although athletes did express strong agreement with the study findings and expressed interest in seeing future studies; (7) an iterative consensus validation process was conducted with two members of the research team to ensure the integration of codings into particular categories made the most analytic sense (which particularly focussed on the labelling of themes and the suitability of quotes/codes for being coded into those themes); and (8) a peer debrief was conducted with an expert researcher throughout the analysis as well as in review of the final analysis. This structured use of multiple sources of data, investigators and theoretical viewpoints is proposed to facilitate a triangulation of the subject matter which is less susceptible to individual bias (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001). Within the analysis process, all identified codes represented the interpreted meanings of the athletes' responses. Some codes were directly named after the participants' own words, whilst others were named after concepts existing in the literature that were representative. In the latter case, processes of private reflection, consensus validation and peer review were utilised to ensure that these codes and categories were represented in the

data and no 'forcing' occurred during the coding (cf. Strauss & Corbin, 1998). Using constant comparison processes (Lincoln & Guba, 1985), the recursive coding of properties, interactions and contexts/situations was carried out until no new information about a category seemed to emerge (Strauss & Corbin, 1998).

Results and preliminary discussion

With a view to highlighting the potential integration of coach, parent and peer influences, Figs. 1 and 2 were constructed to highlight higher-order themes that showed strong correspondence, and the following section lists congruent themes which related to all three social agents, then themes which showed similarities among any two social agents, and finally, the themes that appeared unique to one social agent. Where quotations are provided, the participant's reference is given in the form_[GENDER-AGE-SPORT].

Coach, parent and peer commonalities

Feedback/evaluative behaviours

The concept of 'feedback' or 'evaluative communication' emerged separately in all three dimensions of the analysis. Whilst in the coaching dimension, a more defined 'feedback' theme emerged, the parent and peer dimensions produced slightly broader themes that were termed 'parent evaluative behaviours' and 'peer evaluative communications' (replicating Beltman & Volet, 2007; Vazou, Ntoumanis, & Duda, 2005 – see Fig. 1). All three social agents were reported to provide verbal feedback, which could be positive, negative or neutral/balanced in nature. For example: [regarding coaches] "What helped me was getting a lot of encouragement... like, praising the good things, 'cos you don't really often hear that at this level, it's more 'You need to do this', whereas if they praise you... it's just better"_[F-20-SOCCER]. Coaches were reported as providing explicit behavioural reinforcement, such as punishment of mistakes or rewarding effort (replicating Gould, Lauer, Rolo, Jannes, & Pennisi, 2008; McCarthy & Jones, 2007) – but this was not reported from parents and peers. Instead, the emotional reactions of parents and peers (pride, anger, happiness) were classified as fulfilling a similar reinforcing role. This was to reflect the association that these emotional responses from parents and peers were more frequently in relation to the immediate skill execution or result/performance, whereas the coach themes of 'emotional and affective responses' reflected a general tendency for the coach to be positive, tolerant or 'moody'. An example of 'anger and blame' under the theme 'peer reactions to mistakes' is as follows: "At the end of the game [team-mate] come to me in front of everyone... screaming at me: 'You suck!' And I was shocked... I have to say, the next day... I did not want to go to training."_[M-26A-SOCCER].

The emotional responses of parents were generally more 'distal', occurring during telephone conversations or from the stands. "You can see how much it means to them, when I made my debut for England, I was overwhelmed by it all, but I could see that they were as well and that was such a nice feeling"_[F-20-SOCCER]. The specific role of the coach in providing evaluative feedback produced a number of themes regarding how it should be delivered, as well as its content. Players generally preferred constructive or negative comments to be delivered in private (e.g., "He can't just say to you in front of the team "You're not doing very well"... I'd think he was a dick... but if he pulled me to one side... I'd find myself more motivated to improve that way"_[M-19-RUGBY]), and after the competition/performance is over (e.g., "The first goal was my fault... I misjudged the ball.... But the fact that then we're taking the centre (restart) and the manager shouts, 'That was your fault'... isn't very nice"_[F-20-SOCCER]). Praise seemed to be appreciated at all times,

All 3 social agents	Coach-Parent-Peer			
	Feedback and evaluative behaviours	Coach Feedback	Parent evaluative behaviours	Peer evaluative communication
	Pre-performance motivating behaviours	Coach pre-performance motivating behaviours	Parent pre-performance motivating behaviours	Peer pre-performance motivating behaviours
2 social agents	Coach-Peer			
	Coach-athlete relationship aspects		Peer relationships and social interaction	
	<ul style="list-style-type: none"> a. Closeness – emotional bond <ol style="list-style-type: none"> 1. Friendship 2. Mutual respect 3. Understanding / familiarity b. Commitment-dedication <ol style="list-style-type: none"> 1. Creating opportunities for players 2. "He wants us all to do well" 3. Emotional outbursts show commitment 4. Personal time and effort invested 5. Lack of investment is de-motivating c. "Complementarity" <ol style="list-style-type: none"> 1. Coaches have to "know their players" 2. Must adapt approach to player 3. Familiarity improves communication 		<ul style="list-style-type: none"> a. Friendship and affiliation <ol style="list-style-type: none"> 1. Close friendships 2. Closeness mediates interpretation of criticism 3. 'Tight' feel 4. Closeness reduces rivalry 5. On-pitch partnerships 6. Access to social support through friendships made in sport b. Group membership and belonging <ol style="list-style-type: none"> 1. Team-ship is motivating 2. Team-ship reduces conflict and rivalry 3. "We look after each other" 4. Lack of team cohesion is detrimental 5. Feeling comfortable improves learning 6. Defending-maintaining team-ship <ol style="list-style-type: none"> i. "Backs to the wall mentality" ii. Rejecting criticism from 'outsiders' iii. Personal conflicts get in way of good team-ship c. Cultural-historic influences <ol style="list-style-type: none"> 1. Culture of success-achievement 2. Culture of accountability 3. Culture of improvement and effort d. Competence-relatedness nexus <ol style="list-style-type: none"> 1. Linking competence with social outcomes <ol style="list-style-type: none"> i. Better players stick together ii. Normative ability grants social status iii. Must play well to earn respect 2. Separating competence from social outcomes <ol style="list-style-type: none"> i. Friendships are irrelevant 'on the pitch' ii. Conflicts are irrelevant 'on the pitch' iii. Keeping things separate allows you to 'get on with it' 	

Fig. 1. Integrated representation of the emergent categories and themes in the reported motivational climate that showed similarities between social agents for elite athletes.

unless it was perceived as disingenuous – for example: "But then if they keep praising you [regardless] then they're obviously not watching... Like if they're saying you're doing really well whether you are or not" [F19.4-SWIMMING].

Pre-performance motivating behaviours

This theme represents the behaviours undertaken in the period immediately before competitive performance with the intention of motivating the athlete. All three social agents were cited as being able to promote both positive-approach and pressurising-avoidant

types of motivation, whilst coaches and parents also produced themes of promoting a personal/mastery focus. Coaches were reported to be unique in producing a more competitive emphasis, and also in energising the players, whereas peers provided a unique theme of 'challenging each other' – which could be achieved either collaboratively or through promoting rivalries. A quote exemplifying both ideas is as follows: "Little challenges: 'I'm gonna take more wickets than you' or just having little bets amongst yourselves can be quite motivating... [or] they might say 'I've seen you do it in training and I want you to be top drawer today'" [M-20-CRICKET].

	Coach only	Parent only	Peer only
1 social agent	Instruction and pedagogic considerations a. Equal treatment and perceived fairness 1. Differential treatment 2. Perceived unfairness in selection 3. Athletes will grow to resent 'favourites' 4. "Makes me wanna beat him" b. One-to-one coaching 1. Individual coaching helpful 2. Personalised goals are better c. Groupings in practice d. Task design 1. 'Positive' rewarding drills 2. 'Live' competitive practice 3. Tasks focussed on results 4. Tasks at optimal level 5. Tasks perceived to be relevant e. Selection 1. Clear hierarchy 2. Consistent team selection i) Reassuring for core players ii) Demotivating for fringe players 3. Competition for places f. Evaluation criteria 1. Honesty / transparency of evaluations 2. Mastery-based evaluations 3. Normative-comparative evaluations 4. Fault-finding/scrutinising 5. Using 'objective' performance data 6. Individual vs. team evaluation Coach leadership style a. Autonomy supportive behaviours 1. Allowing the athletes to have choices 2. Collaborative decision style 3. Empowering athletes with knowledge 4. Open questioning style 5. Responsive to athlete input b. Controlling style 1. Controlling prescriptive style 2. Denying choices c. Coach Accountability 1. Rational-predictable 2. Explains selection decisions 3. Outlines relevance of advice 4. Match analysis clearly influences next game 5. Explains key ideas / plans d. Coach knowledge-experience 1. Good playing/coaching record 2. Technical knowledge 3. Well connected e. Supporting relatedness amongst athletes 1. Managing subs-reserves 2. 'Huddles and high-fives' 3. Spotting and preventing 'fractures' f. Coach reflexivity-adaptability 1. Adapts interpersonal style to each player 2. Adapts coaching style to stage-of-season g. Conflicting-inconsistent coaching 1. Conflict between the coaching staff 2. Contrasting affective styles 3. Contrasting values-expectations Coach emotional and affective responses a. Coach propensity for anger 1. Anger over defeats 2. Anger over mistakes b. Positivity affective style 1. Calming influence 2. Energy-enthusiasm 3) Coach's motivation transfers to me c. Coach tolerance 1) Defeats tolerated 2) Mistakes part of the process d. 'Emotional range' of coach e) Perceived sincerity of emotion	Parent support and facilitation 1. Emotional support a) 'Keeping me grounded' b) Always 'there' 2. 'Watching-spectating' a) "I like giving them a good day out" b) Travelling long distances c) "I want them to see how good I am" d) "I don't want them to see me lose" e) They only come to watch the big events f) Keeping track of my progress 3. Unconditional support a) Don't make a big deal of support given b) They support every decision I make c) 'Distant' support – trying not to get involved 4. Managing career a) Pushing/challenging me to go further b) Challenging decision to quit Changing-diminished role a. Diminished influence 1) influence is much smaller 2) Forces me to become self-motivated 3) Friends fulfil parents' old role 4) Decreased contact-exposure b. Changing role 1) "Eventually I will have to support them" 2) Shift from 'coach' to 'mentor' e. Indebtedness – approval seeking i) Making them proud ii) Repaying investment made	Competitive behaviours a. Boasting b. Mind-games and psych-outs c. 'Positive rivalry' i) Real competition mixed with humour ii) Unspoken acceptance iii) "Fine line" iv) Pushing-challenging v) Impossible without friendship d. Refusing to help e. Rivalry and conflict i) "Sports-person-ship" ii) intentionally injuring iii) Unspoken acceptance iv) Increases with higher stakes Complementary behaviours a. Adapting own behaviour to suit colleague i) Adapting game to suit ii) Respecting pre-match routines iii) Need to know what buttons to push b) Emotional support i. Being there for each other ii) Reassuring after poor performance iii) Obligation undermines effectiveness Effort-improvement a. Group promotes improvement i) Cohesion regarding improvement ii) Players drive improvement-reflection b. Collaborative and co-operation 1. Collaborative playing style 2. Collaborative learning i) Peer coaching ii) Joint goal-setting iii) Sharing experiences iv) Sacrificing time to help b. Leading by example i) 'Hero' ii) "Fallen comrade" iii) Their effort is inspiring c. 'Policing' effort levels i) Low effort is unacceptable ii) We push each other in every session

Fig. 2. The emergent categories and themes in the reported motivational climate that related exclusively to each social agent for elite athletes.

Coach and peer commonalities

Relationships and social interactions

In both the coach and peer dimensions, similar themes emerged relating to the importance of social relationships, although they were constructed quite differently. 'Coach–athlete relationships

aspects' contained themes and categories pertaining to the importance of friendship, dedication, and 'knowing-your-players'. After extensive discussion and reflection, these were labelled 'closeness', 'commitment–dedication' and 'complementarity', respectively, in order to reflect similarities with existing models (Jowett, 2003). An example of closeness is: "You want to do well for

him, as well as for yourself. That's what motivates me sometimes... If he's very personal with you in training it's more motivating, if he's very impersonal then it's just like, I don't like it" [M-20-SWIMMING]), whilst complementarity is exemplified as follows: "You can't coach everyone the same way, like you've got to look at what you've got and what kind of person your player is... shouting at one person might be the only way to get through to them but another person might not like that" [F-21-TENNIS]).

The theme of 'peer relationships and social interaction' was markedly different, reflecting the multiple relationships formed among peers. The categories within the theme were termed: (a) 'friendship and affiliation' – relating to individual dyadic relationships (also noted by Farrell, Crocker, McDonough, & Sedgewick, 2004; Vazou et al., 2005); (b) 'group membership and belonging' – relating to the athletes' relationship with the group as a whole (e.g., "We are a group, no-one walk on us, and no-one should be taking us apart. We stay together. And in this team, this is probably the first time in my whole life where we have this. For me, it's unbelievable." [M-26A-SOCCER]); (c) 'cultural–historical influences' (e.g., "I think it's almost an unwritten rule, when you're at [this club] you don't lose... If you look at who's come through the club... you just want to be a part of it. It's just fantastic" [M-21-RUGBY]); and (d) 'the competence–relatedness nexus' – which reflected the tendency to either associate success, selections or competence with social status, or to try and maintain some separation. The roles of captains, non-sporting peers, and romantic partners were all mentioned in passing, but not in sufficient detail to incorporate into the analysis.

Coach-specific themes

Instruction and pedagogic considerations

This higher-order theme referred to the way the coach goes about the core duties of coaching, including teaching, planning and implementing drills, making selections, etc. The higher-order theme contained six categories (see Fig. 2). 'One-to-one coaching' encapsulated the time spent by coaches giving instruction, attention, evaluation and feedback individually. This coaching behaviour was construed as having a very positive influence on motivation. 'Task design' related to all aspects of the drills and practices that coaches organise during their practice sessions. Fundamentally, the nature of the tasks that athletes are asked to undertake was reported as having an influence on their motivation. As such, the category was subdivided into: (a) 'positive/rewarding drills' (e.g., "You're kind of looking to gain points, rather than like losing points... as in, if you can only score zero and one, then that's automatically gonna have a different effect on you" [F-21-TENNIS]); (b) 'live competitive practice'; (c) 'tasks focused on results' (e.g., "There's times when we do focus on specific things, just to win on Saturday... we watched a video and just picked out how they played and then training that week just became based around winning that Saturday" [M-20-RUGBY]); (d) 'tasks at optimal level'; and (e) 'tasks perceived to be relevant'.

'Selection' emerged as an important category which was subdivided into: (a) 'clear hierarchy'; (b) 'consistent team selection'; and (c) 'competition for places'. An example from the theme 'clear hierarchy' is when the coach clearly believes one player is better than another:

If the gaffer thinks someone's better than you, you can't do anything. All you can do is to put pressure on someone by trying good. If you're trying good and the gaffer realises... then you get a chance to play. It's hard to not play... to sit there and watch people play [M-26A-SOCCER].

'Evaluation criteria' emerged as a theme relating to how athletes feel they are evaluated by their coach and was separated from

feedback (wherein the outcomes of evaluations would be communicated to the athlete). Athletes would infer how they were being evaluated without necessarily receiving feedback, and this was also reported to influence motivation. The categories within this theme were labelled 'honesty–transparency', 'mastery-based evaluation', 'normative evaluation', 'fault-finding/scrutinising' (for example: "I was playing in this tournament and like every coach in the LTA and like under the sun was watching, you know all the big... and I was thinking to myself you know 'I can't lose this match...' and I was really nervous... and I ended up losing the match 6-2, 6-1... made a fool of myself!" [M-20-TENNIS]), 'using objective performance data' (e.g., "When you look back at a video... you forget that you missed that tackle and dropped the ball there. It's really quite funny having a one-to-one with [coach] and you're like 'Um, sorry about that!'" [M-21-RUGBY]), and 'individual versus team evaluation' (e.g., "Kind of very, very impersonal very, just taking the team as a whole and not helping individually" [M-22-CRICKET]).

Leadership style

Coaches were the only social agent reported to influence motivation through a clearly discernible 'leadership style'. 'Autonomy support' was generally reported as having a positive influence on motivation, whereas 'controlling style' was often reported in relation to feelings of frustration, anger, undermining motivation and even damaging relationships. An autonomy supportive style included allowing the athletes to make choices, collaborating over decisions, 'empowering' the athletes with knowledge, an open questioning style, and being responsive to athlete input (also identified by Conroy & Coatsworth, 2007; Kimball, 2007). A controlling style included a prescriptive decision style and denying the athletes choices. The category of 'coach accountability' was built around: (a) being rational and predictable (e.g., "He was quite predictable, like he didn't make irrational decisions, he was like good with that" [M-19-RUGBY]); (b) explaining selection decisions; (c) outlining the relevance of advice given; (d) fully explaining key ideas and plans; and (e) ensuring that feedback and analysis clearly influence subsequent 'game-plans'. Transparency regarding key decisions seemed to be highly valued by athletes, who disliked being "kept in the dark" by coaches (also noted by Kimball, 2007).

Explaining selection decisions: [Coach] was good... at highlighting why you've been picked. Or if you hadn't been picked, why you hadn't... maybe we're playing a different sort of game or different sort of team; he would pick players to suit that team, and he wouldn't just say "You've been dropped" he would say why you're not playing this week, and what you need to work on [M-20-RUGBY].

Players in this study felt it was important for their coach to be either very knowledgeable, highly experienced, or both. Players also spoke favourably of coaches who could behave differently depending on the context or situation, and this was reflected in a theme of 'reflexivity–adaptability'. In contrast, players were generally unimpressed when members of a coaching team displayed different values or affective styles, or even obvious conflict; for example: "I think the players then realised that actually it's not as great as we all thought. You know. [Coach 1] is very professional whereas [Coach 2] is a bit off-the-cuff at times" [M-20-RUGBY]. Athletes also reported that coaches could support relatedness and team-ship amongst their team/squad.

Emotional and affective responses

This coaching theme was separated from 'feedback' as it did not always have an evaluative component, but reflected the general

affective style of the coach. The emergent categories within this dimension included: (a) propensity for anger (e.g., “If a coach reacts badly to you doing bad... like if you know your coach is going to absolutely go off on one if you do a bad swim, then you’re gonna worry about doing a bad swim”_[M-21-SWIMMING]), (b) positive affective style (e.g., “We come in at half-time and everyone’s shouting. And he’ll say calm down, settle down... he talks in a lower tone, he doesn’t speak out of emotion, it’s quiet you know? He doesn’t talk out of anger at all”_[M-26B-SOCCER]), and (c) ‘tolerance’ – which was reflected by acceptance, or the absence of a notable reaction, to either mistakes or defeats. Players also discussed the ‘emotional range’ of their coach as facilitating successful interactions in a wide variety of situations, and also ‘perceived sincerity of emotion’ – denoting that they much preferred coaches’ emotions to be genuine (e.g., “[Coach] wears his heart on his sleeve, and shows that kind of emotion. And to me it’s quite inspiring cos he obviously does care...”_[M-21-RUGBY]).

Parent-specific themes

Changed and diminished role

This higher-order theme emerged from a common response amongst athletes to questions regarding “how do your parents influence your motivation?” to which the answer was often *not very much*. Three key categories emerged: (a) ‘diminished influence’, which reflected the changes associated with emancipation and independence; (b) ‘changing role’, which denoted how parents shift from coach to mentor, and how the power balance shifts such that the athlete may be supporting their family; and (c) ‘indebtedness’, which captured the feeling that athletes wish to repay their parents’ investment by making them proud. Whilst this theme rarely addressed specific behaviours of parents in immediately influencing athlete motivation, it was retained in the analysis as it captures important aspects of the transitions faced by athletes entering the investment–mastery stage of their career. It was an interesting theme summarised by the following statements: “I’m not sure they do [influence me] much now. Certainly they’re not a big factor. I couldn’t pinpoint it to be honest, I don’t think it’s much; certainly not quantifiable”_[M-22-CRICKET] contrasted against: “There’s no-one else that could possibly have that effect on you... these people are always gonna be there, they always have, you’re not gonna have that relationship with anyone else... something inside that just wants to make them proud”_[F-20-SWIMMING].

Parent support and facilitation

This theme referred to the supportive role carried out by parents centring around watching/spectating, emotional support, helping to manage the athlete’s career (for example, helping to choose new coaches and planning which events to attend “shows that they care”_[F-21-TENNIS]), and maintaining ‘unconditional support’. Examples include: ‘Keeping me grounded’ – “Like being here you’re just around swimming and coaches all the time. I think your parents are just, they’re just your link back to reality”_[F19-SWIMMING], ‘unconditional support’ – “If I asked him tomorrow, to go down and like throw the ball for like fifty headers, he’d be there without a shadow of a doubt”_[F-20-SOCCER].

Peer-specific themes

Competitive behaviours

This theme referred to the behaviours exhibited by team-mates and other athletes that tended to contribute to a competitive atmosphere, sometimes verging on rivalry and conflict. The categories within the theme were labelled: (a) ‘boasting’, (b) ‘mind games and psych-outs’ (e.g., “I just go up to them and say ‘Oh... you

haven’t dropped a point yet! You’re six points in front of me!’ And the next thing, they’re eight behind me, and they’re thinking: ‘I can’t believe he got to me!’”_[M-28-ARCHERY]), (c) ‘positive rivalry’ (e.g., “We get competitive, like ‘I bet I could beat you at that...’ It does help, even in the gym it makes you put on a little bit more”_[M-19-RUGBY]), (d) ‘refusing to help’ (e.g., “I don’t want to see someone improve more than I’m improving, so... I’m not gonna help someone improve unless I can; unless I’m happy with where I’m at”_[F-20-SOCCER]), and (e) ‘rivalry and conflict’ (e.g., “I think it’s always there, because... like if there’s someone who’s at the same level as you, you’re gonna be competing with them... so you try and do better than them. But it’s not something we talk about.”_[F-21-SOCCER] – mirrored in Farrell et al., 2004).

Complementary behaviours

This theme referred to the behaviours exhibited by team-mates that were aimed at helping each other to perform or improve. The theme revolved around two basic categories: ‘adapting own behaviour to suit colleagues’, and ‘emotional support’. Examples might include: ‘Respecting pre-match routines’ – “Like some people sit in the corner and do their own thing; some people bang their heads... and people who bang their heads have gotta realise they can’t go and bang people’s heads who are concentrating”_[M-20-RUGBY]; and ‘Being there for each other’ – “He was able to increase my motivation by being like: ‘Yeah, you’re right, I don’t understand why you’re not being picked either. You’ve gotta just keep going, just keep doing it.’ I found that really helpful”_[M-20-CRICKET].

Effort–improvement

This theme referred to any behaviours that team-mates could exhibit that were perceived to reinforce effort or improvement. The theme contained four categories, each of which could be further subdivided (see Fig. 2), these were: ‘group promotes improvement’, ‘collaboration and co-operation’, ‘leading by example’, and ‘policing effort levels’. Overall, the theme reflected an increased ownership amongst players of their own development, exemplified by the sub-category ‘players drive improvement’: “I think at this level it’s more the players want to be there [training]... they’re just motivated to do well. At the level we’re playing at, they wanna be better players”_[F-21-SOCCER]. ‘Collaboration-co-operation’ contained both ‘collaborative playing style’ (e.g., “He’s good at beating players one-on-one, but the moves we had weren’t using him very well so we changed some of the moves around to try and get him into the game more and try and build his confidence”_[M-20-RUGBY]) and ‘collaborative learning’ (e.g., “We all learn off each other and feed off each other. Some people do some stuff better and some do different bits better, so we all feed off each other and use it, use it to learn”_[M-18-MMA/UFC]). The category ‘leading by example’ referred to when other players can provide motivation simply by doing something notable themselves. This could involve struggling through injury or poor form producing good skills, or exerting a significant individual effort. Athletes also contributed to a category labelled ‘policing effort levels’, wherein players would push each other, and frown upon lack of effort (e.g., “That’s one good thing about our squad is that we’re all honest with each other, so if you’re slacking any time you’ll get told”_[M-20B-RUGBY]).

General discussion

This study sets out to produce a detailed and integrated description of the motivationally-relevant behaviours of coaches, parents and peers with sport performers at the investment–mastery career stage. Throughout the findings, there were similarities with existing research as well as potential avenues for new

research directions and theoretical discussion. In line with recent studies, the current findings suggest that the socio-environmental influences experienced by elite athletes appear qualitatively different from those of younger or recreational performers (cf. Chantal et al., 1996; Mallet & Hanrahan, 2004). The following sections briefly review the findings for each social agent and then examine the issues raised for future research progression.

Coach influences

As noted previously, the findings of this study show reassuring consistencies with previous studies examining similar phenomena. In the coaching domain, the overall structure appears to replicate Keegan et al. (2009) and Keegan, Harwood, et al. (2010) and likewise, specific themes within the high-order categories are consistent with recent studies examining elite athletes (although there are notably very few for comparison). For example, autonomy supportive leadership behaviours, such as making decisions transparent and being responsive to athletes' ideas, are both also evident in Kimball (2007). Issues of the coach–athlete relationship were also consistent with previous studies, for example Kimball also noted that a trusting relationship with the coach was important in relation to motivation, whilst Farrell et al. (2004) noted that perceived conflict with the coach was often negative. The specific roles associated with coaching, however, appeared to dominate, with evaluation, feedback, instruction and pre-performance behaviours all playing a prominent role in a manner consistent with recent studies (Gould et al., 2008; Keegan et al., 2009; Keegan, Spray, et al., 2010; McCarthy & Jones, 2007). When considering these studies concurrently, a relatively consistent (and detailed) picture may be emerging of the ways coaches can influence athlete motivation, including the ways in which this impact varies across the athlete's career.

Parent influences

The findings regarding the parental influences on motivation were most notable in their differences from research with younger athletes (e.g., Keegan et al., 2009; Keegan, Spray, et al., 2010). This pattern supports the models proposed by Côté et al. (2003) and Wylleman et al. (2004), wherein the motivational influence of parents seems to diminish significantly during the investment–mastery years. This was particularly reflected by the theme 'changing-diminished role'. The motivational impact of parents in the investment–mastery career-phase appears to lessen in both magnitude and frequency; with the main sources of influence restricted to travelling to watch, telephone conversations, and general emotional and moral support (e.g., keeping athletes 'grounded', and offering unconditional support).

Peer influences

The way that peers influenced motivation in this study both echoes and extends previous studies (e.g., Keegan et al., 2009; Keegan, Spray, et al., 2010; Vazou et al., 2005), which examined younger or recreational athletes. While themes concerning 'peer relationships and social interaction' were apparent in all these studies, social consideration between peers appeared to be highly influential in this elite population. Alongside comments by participants that team-mates 'take over' certain key roles from parents, themes of 'friendship and affiliation' and 'group membership and belonging' were prominent, and also consistent with Allen (2003). The linking of social recognition and status with the demonstration of skills and normative competence (cf. Evans & Roberts, 1987; Urdan & Maehr, 1995) was also evidenced in the 'competence–

relatedness' nexus but, equally, some players reported making a conscious effort to maintain a separation between social considerations and performance/competence.

The combined influences of different social agents

The integrated approach in studying the socio-environmental influences on motivation that was used in this study held the potential benefit of illustrating interactions between the influences of social agents. The coach 'supporting relatedness amongst athletes' was one example of this, whilst the theme "friends fulfil parents' old role" also captured an element of the changes that occur as players enter the elite level. Overall, however, it was very difficult to detect instances where social agents explicitly relied on each other's influence. There were, instead, notable parallels between coach, parent and peer dimensions, for example, all three social agents produced a theme synonymous with 'feedback'. These parallels may point towards an examination of how complementary (or conflicting) different behaviours and sets of behaviours are, which could be an interesting avenue for future research. Coaches, parents and peers all shared influences in the form of their feedback (or evaluative 'behaviour') and their pre-performance behaviours, although this influence was much more frequent and impactful from coaches and peers. Coaches and peers shared an important influence in the form of relationships and social interactions, which seemed to both influence how the behaviours and communications of others are interpreted, and also be a motivational influence in their own right.

The apparent importance of these contextual interactions in moderating motivational consequences suggests they are a central concern for elite athletes, constituting an important aspect of the socio-environmental component of motivation (cf. Allen & Hodge, 2006), rather than considering them as a coincidental factor (cf. Roberts, 2001). For example, consider the likely impact of criticism within a warm and friendly relationship, as opposed to a distant, conflicted relationship. Taking self-determination theory as an example, the current findings suggest not only that all three of the basic psychological needs are active in determining the motivation of elite athletes, but also that the supporting of these different needs may interact. To illustrate, relatedness-support (e.g., encouraging friendships) might be used to support competence (e.g., players spend more time together and share ideas), or autonomy support (e.g., allowing more choice) might contribute to increased perceptions of relatedness (e.g., increasing liking for the coach – cf. Conroy & Coatsworth, 2007).

Career stage comparisons

In comparing the data from this study to those by Keegan et al. (2009) and Keegan, Spray, et al. (2010), which used a similar approach with athletes at the 'initiation' and 'specialising' career stages, some similarities can be drawn at the level of higher-order themes. Key influences exerted through feedback, emotional responses, coach leadership style, coach pedagogic considerations, peer relationships, peer competitive and peer collaborative behaviours, all appear to be reported throughout the career span from 'initiation' onwards. Some changes are apparent within these themes, which may reflect genuine differences in the mechanisms of influence, but they may also reflect increased self-awareness and eloquence amongst this elite group. These differences were very noticeable with regard to the parent dimension, wherein an integral involvement (e.g., driving to training, buying equipment, facilitating play and practice) seems to diminish during the mastery–investment years, to become a more distant and infrequent influence. In contrast, peer involvement seems to become

more integral and influential through the career span, even being reported to 'take over' from parents in some key respects (emotional support, friendship etc.).

Such a pattern is consistent both in relation to the three models of athlete career progression under consideration (Bloom, 1985; Côté et al., 2003; Wylleman et al., 2004), and also for the following reasons: (a) the objectives of the investment–mastery stage are significantly different to the preceding two stages (e.g., generate/maintain interest versus trying to 'make it', learn-and-improve versus master-and-compete, and fun/recreation versus achievement/learning); (b) the emancipated, independent athlete is likely to form very different relationships with their coach and, by definition, their parents – as a result of their increased autonomy and status; and (c) elite athletes spend proportionately more time with their peers, extending beyond training/competition to include travelling, rooming, post-event, and attending social events outside of participation. The core consistency across all three career stages is that the potential motivational influences of social agents can be derived from the roles performed by each and, in particular, the way in which that role is fulfilled. The key questions become: "What does each social agent do, when, and how do they go about it?" Whilst abstract themes relating to the supporting of psychological needs or different types of achievement goals can all be observed in the data, analysing 'towards' any of these theories would arguably have undermined the development of a comprehensive understanding. The findings from this critical realist study are likely to be immediately accessible to researchers, practitioners and coaches alike.

A central finding in the current study was that specific behaviours and themes were rarely associated with a specific motivational impact. For example, depending on the respondent, the source and the context, criticism was associated with reduced motivation, anger/frustration, avoidance-based motivation, improvement/mastery, and thwarted autonomy. Praise could lead to improved motivation and mood, it could be seen as disingenuous and be ignored, or it could even be questioned as mollycoddling or reflecting a lack of coach expertise. The relationship between the behaviours of social agents and their impact on motivation is likely to be moderated by a number of contextual and interpersonal factors (cf. Elliot, 1999). The findings of this study and others like it suggest a complex causal chain between objectively observable events and the impact on an athlete's motivation. Whilst the use of self-report questionnaires is one response to this problem, new methods and analytic techniques may now exist that can utilise the data of this study in building a nuanced and refined understanding of how to influence motivation.

It is important to remain cognisant that this study merely sought to explore and identify the broad array of motivationally-relevant behaviours exhibited by the key social agents surrounding athletes at the investment–mastery career stage. The broad scope of the study meant that it was impossible to establish the specific ways that such behaviours combine to influence motivation, and this should be addressed in future studies adopting a tighter focus and perhaps a different methodology (i.e., the 'ingredients' metaphor in the Introduction). Likewise, the study was limited as the sample contained many more male and white/British participants than females or other ethnicities and nationalities. This may not be ideally representative of athletes at the investment–mastery career stage. Likewise, all the participants were competing in Britain, meaning that the governance structures in different countries may provide different motivational challenges. However, differences between genders, ethnicities and nationalities were not a focus of this study, and future large-scale or quantitative studies may be able to explore any such differences. Other limitations of the study include reliance on the qualitative methodology of athletes' recall

and ability to articulate their experiences effectively. Equally, the use of focus groups may have introduced limitations such as social desirability, perhaps preventing the participants from being openly critical of coaches, parents or peers. Whilst the quality and depth of the responses provided would suggest these were not serious problems, they must be considered in evaluating the findings of the study.

Conclusion

The findings of this study may be used to inform future intervention work, and in the design of studies assessing the precise impact of coaches, parents and peers in elite athlete motivation. Such studies may also give us the ability to establish which aspects of an intervention are the most influential in effecting motivational outcomes (Smith et al., 2007), and they may enable researchers to compare the observed behaviours of social agents with what the athletes perceive (Duda, 2001). In combination with other studies, this research will build a picture of motivational influences across the developmental trajectory of athletes' careers, which should ultimately enable the design of training environments that encourage enjoyment, participation, persistence and improvement – all of which are likely to be vital for elite athletes to reach and sustain the limits of their potential.

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